KING SABATA DALINDYEBO MUNICIPALITY

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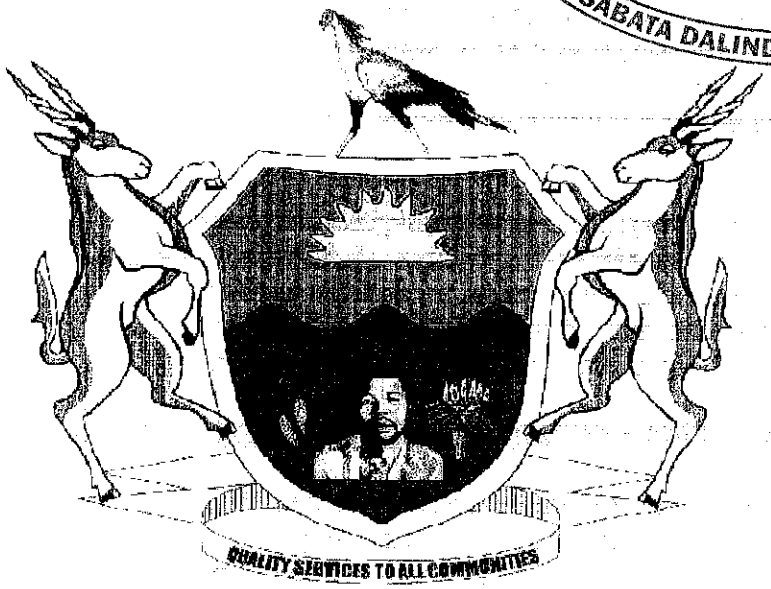

Electricity Management and Loss Control Policy

2018-2019

MUNICIPAL MANAGER
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KING SABATA DALINDYEBO MUNICIPALITY

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1. DEFINITIONS

"Council" means a municipal Council established in section 18 of the Municipal Structures Act and referred to in section 157(1) of the Constitution.

"municipality" means the King Sabata Dalindyebo Municipality established in terms of section 155 of the Constitution.

"accounting officer" means the Municipal Manager of the King Sabata Dalindyebo Municipality

"senior manager" means a manager referred to in section 56 of the Municipal Systems Act, Act 32 of 2000 in other words managers appointed by King Sabata Dalindyebo Council and who is directly accountable to the Municipal Manager.

"official" means an employee of the King Sabta Dalindyebo Municipality or person seconded to the municipality or person contracted by the municipality to work as a member of staff of the King Sabata Dalindyebo Municipality.

2. INTRODUCTION.

Electricity is vital to households, businesses and municipalities. For most households, electricity is the principal source of energy. Businesses need electricity to undertake production, communication and a host of other uses. For municipalities that provide electricity to households and businesses, it is also a major source of revenue and can generate surpluses that can be used to fund other municipal functions.

Electricity generation however accounts for a huge portion of unwanted emissions such as greenhouse gasses that are typically produced by power stations into the atmosphere. Increasing energy costs and environmentalist's actions to protect the natural resources, energy supply companies, that includes municipalities, are forced to conserve and reduce energy usage and should therefore focus on the reduction of electrical energy losses in distribution networks. Energy losses are an inherent risk in the electricity distribution business and if not managed properly can lead to financial losses. Furthermore, effective energy management is also a cost-effective alternative to decreasing pollution in the electrical energy industry.

Losses incurred in electrical power systems are generally characterised by two components: technical and non-technical losses. Reducing the technical and non-technical losses will ensure that the cost of electricity to the supplier will be reduced as less electricity will be used from the power generating company. The cost of the electricity to the customer will therefore also be less as they will not have to pay for the losses in the electricity supply network. Both these reductions will have a positive influence on the cost of electricity.

With the above in mind, and in meeting governments' vision of providing South Africans with affordable, reliable and sustainable electricity, this policy was compiled to provide a framework within which the municipality will prevent, limit or reduce unnecessary losses. It also serves as a basis for the development of loss control strategies and plans.

3. LEGISLATIVE FRAMEWORK

Electricity reticulation, in accordance with Schedule 4 of the Constitution, is a municipal responsibility. However, in practice, Eskom and municipalities both distribute electricity to consumers.

In accordance with section 62 and 78 of the Municipal Finance Management Act, Act 56 of 2013, the Accounting Officer, senior managers and other officials are required to take all reasonable steps to ensure that resources of the municipality are effectively, efficiently and economically utilised and that losses are prevented.

Furthermore, in accordance with section 125(2)(d) of the mentioned act, the notes to the financial statements of a municipality must include particulars of any material losses that occurred during the financial year, and whether these are recoverable, any criminal or disciplinary steps taken as a result of such losses; and any material losses recovered or written off.

Also in accordance with regulation 7 of the Municipal Budget and Reporting Regulations, 2008, a municipality must prepare budget related policies that include policies relating to the management of electricity.

4. OBJECTIVES OF THE POLICY

The objectives of the policy are to:

4.1 provide a guideline to identify the types non-revenue electrical losses, quantify these types of non-revenue electrical cases, determine the root causes for the identified non-revenue electrical cases to implement corrective steps if necessary and properly disclose the losses, where applicable, in the Annual Financial Statements (AFS)

4.2 assist officials to create a climate that is conducive to internal control, risk management and prevention of losses and to contribute towards creating respect for the resources entrusted to the municipality for use in the best way possible.

4.3 Institute uniform reporting procedures that will not only ensure that the record of losses is kept more efficiently and effectively, but will also contribute to the promotion of greater efficiency in the management of losses and the establishment of an effective risk prevention strategy.

4.4 encourage officials to perform their duties in a responsible manner and to avoid unlawful conduct that may result in unnecessary losses and to held all officials including management accountable for losses in their respective area of responsibility.

5. CALCULATION OF ELECTRICITY LOSSES

An ideal electrical energy distribution network will generate electrical power X and distribute the electrical power to the network equal to X. Due to losses in the transmission and distribution sections of the electrical energy network less than X electrical energy is distributed to the network. This loss in electrical energy is the system losses of the electrical distribution network. The system losses of an electrical distribution network can, as already mentioned, be divided into two main groups namely the technical losses and the non-technical losses and **represents non-revenue electricity supply.**

Technical losses are caused by the physical properties of the components of the power system in other words the equipment used for distribution of power. The most obvious example is the power lost in the distribution lines and transformers due to unavoidable internal electrical resistance and energy dissipated in the conductors and equipment.

Non-technical losses are the portion of the distribution network losses that is primarily due to human actions whether it is intentional or not and are dominant in the lower sections of the electricity distribution network and includes amongst others unauthorized line tapings, meter tampering and damages to equipment.

The non-technical and technical losses of the distribution network is interconnected and calculated as the total losses of the electrical distribution network. Therefore, it is necessary to derive calculated estimated values for either the technical or non-technical losses in the network. However, non-technical losses are a result of internal process issues such as inaccurate billing information and defective meters as well as external issues such as electricity theft and tampering and are impossible to calculate, thus the **technical losses must be derived and quantified** for an electrical distribution network. Technical losses can be accurately calculated or estimated using load flow studies as long as network configuration and load flow data is available. Non-technical losses must therefore be calculated as the difference between total losses and technical losses.

Electricity loss calculations **must be performed** on a **monthly basis** to ensure that discrepancies are immediately resolved. It is accepted that the metered consumption could fluctuate depending amongst others seasonal changes, meter reading problems, interim estimates and meter corrections. To allow for these changes, electricity loss calculations should be prepared on a 12-month rolling basis.

Lastly, it must be emphasised that **free basic electricity** is considered billed metered consumption, billed at a zero rate, and forms part of the billed consumption.

6. CLASSIFICATION OF NON-REVENUE ELECTRICITY (NRE)

Non-revenue electricity is the units of electricity distributed for which the electricity utility (municipality) receives no income. Non-revenue electricity, as previously mentioned, consists of technical and non-technical losses:

6.1 Technical losses are authorised, unmetered uses or unavoidable internal system losses. These losses are caused by the physical properties of the components of the power system and are encountered within the network due to non- perfect networks. Losses are encounter at transformers, cables and overhead lines due to unavoidable internal electrical resistance and is dependent on the quality of the engineering design of the network.

6.2 Non-technical losses include authorised metered/unmetered consumption, unauthorised, unmetered uses and avoidable system losses. The term "non-technical losses" is an euphemism for theft of electricity, meter mismanagement, fraud or such equivalent term denoting inadequate management of the financial and metering sides of the distribution network

6.1.1 Authorised unbilled metered consumption

The unbilled metered consumption are the units of electricity which the consumer is authorised to use, supplied through a metered connection which is read or estimated on a monthly basis but consumers do not receive a bill. These consumers typically include the municipality's own use for office buildings, sport grounds and plants.

6.1.2. Unbilled unmetered consumption

Unbilled unmetered consumption typically includes the municipality's own use for street lightning and robots. However, unbilled unmetered consumption should form a very small portion of the overall electricity loss calculation since all electricity supplied should preferably be billed or metered.

6.1.2 Unauthorised connections (theft)

An unauthorised connection is defined as an electricity connection to a consumer which was not installed by the electricity utility (municipality) (unauthorized line tapping) or an electricity connection which has deliberately been tampered with to reduce or eradicate the metered consumption (meter tampering)

6.1.4 Meter error and under registration

Meter accuracy is fundamental to the energy billing process. Electricity meters are generally reliable and major operational faults are rare. In some rare occasions a meter can be faulty and may indicate a greater or lesser consumption than the reality.

6.1.5 Data transfer and management errors

Data transfer and management errors are the difference between the actual metered consumption and the metered consumption billed. Data transfer and management errors typically occur because of data entry errors, estimated readings, meters not captured/read on the billing system and financial billing corrections without unit corrections.

Reducing technical losses will mitigate the need to add generation capacity to the system, while reducing electricity theft will raise revenues. Both measures could help to lower prices for all consumers. While law enforcement should play a greater role in reducing electricity theft, municipalities can achieve far greater efficiency by reducing the technical losses on their distribution systems.

7. CONTROLING AND MONITORING OF NON-REVENUE ELECTRICITY (LOSSES)

With the monthly calculation of the electricity losses, the losses must be monitored and where necessary detail should be obtained as proof of the losses in order to institute controls to minimize these losses.

The following controls/measures must be in place or instituted to mitigate electricity losses:

(a) Technical losses

A well-documented electrical network must be in place and network configurations and load flow data must be available to achieve the accurate calculated or estimated technical losses in order to determine the non-technical losses.

(b) Non-technical losses

(i) Installation of meters, where practically possible, for all electricity consumption to be metered.
(ii) Monthly billing of municipal accounts and clearing to expenses of the applicable departments must take place. (In this regard the municipality, must ensure that electricity used for its own operations, is charged to the relevant service and not simply attributed to the electricity losses)
(iii) Approval of all new applications for electricity connections and finance to be notified to update the billing system in respect of all new meters installed.
(iv) Electricity meters to be read each month and to keep estimates as low as possible.

(v) Pre- determined monthly route lists for electricity meter readers to be read must be available to ensure all installed meters are read and billed on a monthly basis.
(vi) Exception reports must be available and reviewed on a monthly basis to identify possible incorrect readings, no readings and unusual monthly consumptions (high and low) in order to implement the necessary corrective steps as quickly as possible.
(vii) Perform regular checks to identify and investigate properties where other services such as water, sewerage and refuse removal are charged but not electricity and if necessary to implement corrective steps.
(viii) Regular follow-up on cases where no pre-paid electricity was bought for periods of three months and longer.
(ix) Swift testing of identified faulty meters (conventional and pre-paid meters).
(x) Institute meganisms and create an awareness by the general public/consumers of these meganisms through which staff of the municipality should be informed of damage to or theft of electricity cables and illegal connections. An active citizenry is very important in this case.
(xi) Maintaining electricity supply infrastructure assets.
(xii) Effective law enforcement which is crucial for driving customer compliance.
(xiii) Institute policies and by-laws and procedures to follow in respect of any fraudulent activities in respect of the provision of municipal services.
(xiv) Investigating technologies to assist in the consistent management of electricity losses in high loss areas.
(xv) Timeous follow-up of any other complaints in this regard.

8. QUANTIFICATION AND ACCOUNTING OF NON-REVENUE ELECTRICITY

With the monthly calculation of the electricity losses, detail in respect of the quantification of the technical and non-technical losses (non-revenue electricity) should be available. Non-revenue electricity should be accounted for as per the examples included in Annexure B of MFMA Circular 70 of which a copy is attached.

9. REPORTING IN ANNUAL FINANCIAL STATEMENTS (AFS)

The total losses that a municipality may incur for electricity must be made public in the annual financial statements of the municipality in accordance with section 125 (2)(d)(i) of the MFMA.

10. REVIEW

This policy will be reviewed annually to ensure that it complies with changes in applicable legislation and the operating requirements of the municipality.

11. SHORT TITLE

This policy shall be called the Electricity Management and Loss Control Policy of King Sabata Dalindyebo Municipality.

Z.H NGOVELA

ACTING MUNICIPAL MANAGER

RESOLUTION NUMBER: ORD 313/05/18